

AMENDMENTS TO THE SPECIFICATION

Please substitute the amended versions of the following paragraphs:

[0032] In one of the initial steps, silicone is spun onto a silicon handle wafer. The silicone is poly(dimethylsiloxane) known as PDMS. PDMS has very low water permeability and protects the electronic components from the environment. PDMS is flexible and will conform to curved surfaces. It is transparent, stretchable, resinous, rubbery, stable in high temperatures and provides numerous applications for the electronic devices produced by the method ~~300~~ 500.

[0033] The silicon handle wafer provides a temporary base for production of the electronic device. Silicon wafers are convenient for the handle material because they are flat, stable, routinely used in microfabrication applications, and they are readily available. However, other materials such as glass, plastic, or ceramic could be used as well. The electronic devices will eventually need to be removed from the handle wafer. Since the flexible polymer layer would become permanently bonded to the surface of the silicon handle wafer, a non-stick layer is first provided on the silicon handle wafer. The step comprises the deposition of gold (or platinum) onto the handle wafer. This allows for removal of the PDMS from the substrate after processing. The gold film facilitates removal of the polymer membrane from the wafer after completion of the fabrication process. Needed areas on the silicon wafer is left without the gold coating to prevent the PDMS membrane from lifting off during processing for example a 2 mm wide ring at the edge is left uncoated with gold. PDMS is then spun onto the wafer at a desired thickness and cured. For example the PDMS may be cured at

66°C for 24-48 hours (or at manufactures' specifications). It is to be understood that the step ~~301~~ 501 could be omitted if the surface on which the PDMS layer is deposited is such that the PDMS will not become bonded.

[0034] In a subsequent step ~~303~~ 503 the process of forming the electrical circuit lines and the central electrode array of the OctoPDMS system 100 is initiated. A photoresist (AZ®1518, Clariant) is spun onto the PDMS membrane surface at 1000 rpm for 20 seconds and baked at 60°C for 45 minutes. The temperature is brought down slowly (30 min. to ramp temperature down) to room temperature to avoid cracking in the photoresist. Prior to photoresist application, the wafer is placed in an oxygen plasma to activate the surface. This allows the resist to wet the PDMS surface preventing beading and ensuring the formation of a smooth and uniform coat of photoresist on the polymer surface. The substrate is placed in the oxygen plasma for 1 minute at an RF power of 100 Watts with oxygen flowing at 300 sccm. The photoresist features are then UV exposed at 279 mJ and developed in AZ developer mixed 1:1 with water for 70sec. Then the wafer is rinsed under a gentle stream of water and dried using N₂. The wafer is placed for a second time in the oxygen plasma to activate the newly exposed PDMS surface, and promote adhesion of the metal, which is deposited in the next step.

[0041] The system 600 provides a system that restores vision to people with certain types of eye disorders. The system 600 includes a video camera 608 that captures an image 609. A device sends the image via a cable connection, a laser or RF signal ~~52~~ 611 into a patient's eye 604. Electronics, generally indicated by the reference numeral 601 within the eye 604 receives the image 609 signal and send it to the electrode array ~~601~~ designated by the reference numerals 602 and 603. The electrode array ~~601~~ 602 and 603 utilizing a substrate made of a

compliant material with electrodes and conductive leads embedded in a substrate. The electrodes contact tissue of the retina. The implant electronics 601 stimulates retinal neurons. The retinal neurons transmit a signal to the brain 605.

[0055] The final implant specifications calls for a device with approximately ~~a1000~~ 1000 electrodes contained within an area of 16 mm². The electrode array is contained in the octagonal base with eight arms containing 125 metal traces for electrical contact.